

**GOVERNMENT OF INDIA
SHIPPING
LOK SABHA**

STARRED QUESTION NO:332
ANSWERED ON:08.12.2016
Shipbuilding Technology in India
Chavda Shri Vinod

Will the Minister of SHIPPING be pleased to state:

- (a) whether the Government is satisfied with the level of technology now being used in the shipbuilding activities and if so, the details thereof;
- (b) whether the Government proposes to improve the quality of shipbuilding education and technology in the country to match with the international standards and if so, the details thereof; and
- (c) the present status of institutions which are providing education/training in the field of shipbuilding in the country?

Answer

MINISTER OF STATE IN THE MINISTRY OF SHIPPING
(SHRI MANSUKH L. MANDAVIYA)

(a)to(c): A Statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO PARTS (A) TO (C) OF THE LOK SABHA STARRED QUESTION NO. 332 TO BE ANSWERED ON 8TH DECEMBER, 2016 RAISED BY SHRI VINOD LAKHAMASHI CHAVDA REGARDING 'SHIPBUILDING TECHNOLOGY IN INDIA'.

(a) Major shipyards in India are continuously endeavouring to develop, acquire and use modern and latest technology as far as shipbuilding activities are concerned, keeping in mind the type of vessels being built. Cochin Shipyard Limited (CSL), Kochi, a Central Public Sector Undertaking under administrative control of Ministry of Shipping, uses 'Tribon' software for ship design and other modern state of art facilities. It has enhanced its competence in LNG carrier building in collaboration with GTT, France and M/s. Samsung Heavy Industries. The modern shipbuilding technology which is being put to use by CSL and MoU's entered into by CSL with reputed foreign firms to upgrade shipbuilding technology is given at Annexure. Among the significant collaboration of private shipyards in India, L&T Shipyard has tied up with Mitsubishi Heavy Industries of Japan for the latest technologies, processes and procedures for modern commercial shipbuilding including training their personnel at Mitsubishi shipyard. Reliance Defence and Engineering Limited has a technology collaboration with DCNS, France for construction of modern combat ships and strategic platforms like Landing Platform Dock and Modular Construction Technology.

(b) Indian Maritime University, Chennai (IMU) has constituted a School Board for Naval Architecture & Ocean Engineering for framing the Syllabi and Regulations of courses such as B.Tech (Naval Architecture & Ocean Engineering), B.Sc (Ship Building & Repair), M.Tech (Naval Architecture & Ocean Engineering) and M.Tech (Dredging & Harbour Engineering). The School Board of IMU assesses the needs of the shipbuilding industry while framing the Syllabi and Regulations to match international standards.

As part of the Central Government Skill Development initiatives, CSL in collaboration with the CII Strategic Manufacturing Sector Council is redesigning and improving the syllabus and course content applicable for the various trades covering the entire gamut of Ship building operations. CSL has also signed a Memorandum of Understanding (MOU) with the Indian Maritime University, Cochin Campus, to impart practical training in CSL for 18 to 24 weeks to their BSc (Shipbuilding) course students.

(c) At present, professional courses in ship building and naval architecture are conducted at the Indian Institutes of Technology (IIT), Kharagpur, IIT, Chennai, Cochin University of Science & Technology, Kochi and Andhra University, Visakhapatnam. In addition, Diploma courses in shipbuilding technology are conducted at the Institute of Shipbuilding Technology, Goa.

CSL imparts apprenticeship training to around 450 apprentices in all the core areas in ship building annually. CSL also imparts specialized training for around 1000 trainees on Ship building and Ship Repair under a structured training programme.

Annexure

(Annexure Referred to in part(a) of the statement mentioned in the reply to Starred Question No. 332)

â€¢ Integrated Hull Outfit and Painting (IHOP) system of construction, as followed in the Japanese yards, is being adopted in CSL, for the sound and efficient construction of the vessels.

â€¢ CSL has put in place "state of the art" infrastructure for shipbuilding. CSL uses 'Tribon'shipbuilding package for undertaking

basic design, structural, machinery and electrical design. 3D hull, piping and electrical models are created leading to error free and optimum ship designs. Information for various Numerical Controlled equipments is also generated on these systems.

With regard to Quality Control and Testing Laboratory, CSL has in its premises a well-equipped laboratory capable for undertaking all Non Destructive Testing technique. The laboratory is approved by various classification societies.

CSL is using modern shipbuilding facilities. The list of shipbuilding facilities and equipment is given below:

a. Dock No.1

The Dock No.1 of 255 x 43 x 9 M is available for building ships up to 1,10,000 DWT. This dock and the grand assembly area served by Two Gantry cranes of 300 T & 150T and two Level Luffing Tower Travelling cranes (50 T each).

b. Steel Stock yard

The steel stockyard has an area of 18,000 Sq.M. aided with two gantry cranes of 25 T each and one semi gantry crane of 25 T.

c. Hull Shop

The Hull Shop having a covered area about 55000 sq. metre is self-contained with infrastructure required for fabrication of hull blocks up to 50 T. The shop is provided with EOT cranes (50 T) for along the bay movements and gantry crane (20 T) and trailers for across the bay transfer of materials.

Equipments available in the hull and pipe shops are:

• Mangling Machine

• Blasting & Priming Machine

• Steel Cutting Machine - Plasma

• Steel Cutting Machine - Gas

• Parallel burning Steel Gas Cutting Machine

• Steel Plate Bending Roll Press

• Steel Plate Press

• Steel Plate Shearing Machine

• Section Blasting Machine

• Frame Bending Machine

• Beam Bending Machine

• Flat section Squeezing Machine

• Section Cutting Machine

• One side Welding Machines (Automatic)

• MIG/MAG Welding Machines (Semi Automatic)

• Manual welding Machines

• Submerged arc welding machines (Mechanised)

• Final shaping of the Fabricated Panel - welded panel Cutting Machines

• Electro Gas Welding Machines

• 150mm Pipe Bending Machine.

• Pipe Coaster (1.2 m dia. capacity)

d. Assembly Shop

This shop has telescopic sliding roof and two gantry cranes which spans over it and building dock. Hull blocks up to 300 T can be jumboized here and erected in the building dock using the gantry crane. In addition, two 20 T capacity EOT cranes are there in the shop.

e. Pipe and Sheet Metal Shop

The pipe shop is provided with all the necessary equipment for bending, cutting, welding and pickling of pipes. The sheet metal shop handles all the light steel fabrications, trunking etc.

f. Marine Coating Shop

There are a total of 7 Nos. of covered humidity controlled marine coating shops equipped for blasting and painting of fabricated units in controlled and favourable ambient conditions. Blasting using graded copper slag and painting using modern air-less spray-painting machines is carried out to provide the most effective coatings on steel structures. The entire methodology, process and finished surface are checked and vetted by well-qualified and experienced personnel from CSL and the paint manufacturer representative.

g. Further to upgrade technology, CSL has entered into MoUs with reputed foreign firms. Details are given below:

SL. No Firm Valid from Remarks

1 M/s C-Job & Partners BV, Netherlands 19.07.2014 Technical Collaboration for developing the design for a Trailer Suction Hopper Dredger

2 M/s Alion, USA 11.08.2014 MoU for Design for construction of Anti Submarine Warfare shallow water crafts for Indian Navy

3 M/s TechCross, Korea 04.11.2015 MoU for servicing Ballast Water Treatment Plants

4 M/s IHC, Holland 09.02.2015 MoU for construction of Dredgers

5 M/s Samsung Heavy Industries, Korea 03.2015 Technical Service Agreement for construction of LNG Carriers for M/s Gas Authority of India

6 M/s GTT France License agreement exchanged on 02.12.2015 CSL acquired license for building LNG ships for using their patented Mark-III Technology.
